

Your Name: Travis Xie**BAYES NET REFACTORING**

Consider the Bayes Net below, with root node A and child node B. The marginal for A and the conditional distribution for B given A are as shown. From these, compute the joint distribution of A and B using the product rule, and put its values into the table at the right. The first entry is done for you.



A	P(A)
T	0.8
F	0.2

A	B	P(B A)
T	T	0.4
T	F	0.6
F	T	0.5
F	F	0.5

A	B	P(A,B)
T	T	0.32
T	F	0.48
F	T	0.10
F	F	0.10

Next, determine the needed marginal and conditional distributions for the refactored representation of this joint distribution according to the Bayes Net diagram below. The first item in the conditional table is done for you.



B	P(B)
T	0.42
F	0.58

B	A	P(A B)
T	T	0.32/0.42
T	F	0.10/0.42
F	T	0.48/0.58
F	F	0.10/0.58

What does the fact that you can represent this joint distribution with 2 different Bayes Nets suggest about the relationship between causality and network structure?

The network structure suggests no causality.

provided by S. Tanimoto, 2021

Who were your groupmates for this activity? Write down their names and email addresses:

1. Jason
jasonl9k@uw.edu
2. Quynh
hpquynh@uw.edu
3. _____